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June 24, 2008

Steven R. Hirsh  
U.S. EPA Region III (3HS12)  
1650 Arch Street  
Philadelphia, PA 19103

Subject: Response to U.S. EPA Comments  
*Draft Non-Time-Critical Removal Action Work Plan; Site 18 Former Naval Magazine  
Waste Storage, Naval Station Norfolk; Norfolk, Virginia, April 2008*

Dear Mr. Hirsh,

On behalf of the Navy, the following responses are offered to U.S. Environmental Protection Agency (EPA) comments on the above reference document from Steven Hirsh received via e-mail on May 19, 2008 which read:

*EPA has reviewed the "Non-Time Critical Removal Action Work Plan, Site 18 Former Naval Magazine Waste Storage Area, Naval Station Norfolk, Norfolk, Virginia". The following comments are submitted for your consideration. We have previously discussed these. It would be helpful if you could prepare a brief response that I can provide the hydrogeologist.*

1. Figure 1-6, depicts the COPCs at Site 18, please note the surprising rise in concentrations in well MW-03S over time, an increase of this magnitude is quite rare.

Response: Comment noted.

2. Section 3.2.2 Injection Volume and Rate, Page 3-3, second paragraph, refers to daylighting of substrate" and decision mechanisms to be used during injection of EOS. Please define the term "daylighting" and why it would be of concern.

Response: Daylighting occurs when the injection substrate escapes to the ground surface; consequently, the prescribed dose of injectate is not delivered to the injection point. The third sentence of the second paragraph in Section 3.2.2 has been revised as follows: "Likewise, if the field team observes the substrate discharging to the ground surface (daylighting) during injection, the field team will stop work and notify the project manager, who will then consult with technical staff to determine any adjustments needed to the injection procedures."

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3. Figure 3-1 and 3-2 Show the location of a B-B' transect along with the intended treatment/injection depths. Transect B-B' is perpendicular to groundwater flow and yet the application depths are shown in Figure 3-2 as being at two distinct depths. Figure 3-2 states that injection depths will be 6 to 16 feet or 12 to 22 feet below ground surface. Based upon the groundwater flow direction present, please justify why the orientation of deep injections is warranted or based on a perpendicular direction to groundwater flow. There may be data I am unaware of in terms of the design of the injections system for which this rationale is apparent. However from what's presented the intent of the distribution of injected agent is not apparent.

Response: The application of substrate at two distinct depths is based upon an analysis of the Membrane Interface Probe (MIP) and direct push technology (DPT) groundwater data collected in December 2004 and monitoring well data collected in July 2007. Groundwater data collected before 2007 is summarized in the *Final Site Investigation Summary Report, Site 18, Former Naval Magazine Waste Storage Area, Naval Station Norfolk, Norfolk, Virginia* (CH2M HILL, November 2007). Groundwater data collected in July 2007 is summarized in *Final Engineering Evaluation/Cost Analysis, Site 18, Former Naval Magazine Waste Storage Area, Naval Station Norfolk, Norfolk, Virginia* (CH2M HILL, March 2008). The MIP and groundwater data indicate constituent concentrations are greatest in the shallower portion of the Columbia Aquifer in the northwestern portion of the treatment area and greatest in the deeper portion of the Columbia Aquifer in the southeastern portion of the target treatment area. Accordingly, the injection depths detailed in the work plan coincide with the depths at which the greatest concentrations were detected.

If you have any questions regarding these responses, please contact Ms. Winoma Johnson, P.E., at (757) 444-3418.

Sincerely,

CH2M HILL



Adina Carver  
Project Manager

cc: Ms. Winoma Johnson, P.E./NAVFAC MIDLANT  
Mr. Eric Salopek/VDEQ  
Ms. Bonnie Capito/NAVFAC Atlantic  
Ms. Holly Rosnick/CH2M HILL - WDC  
Mr. Paul Landin/CH2M HILL - VBO